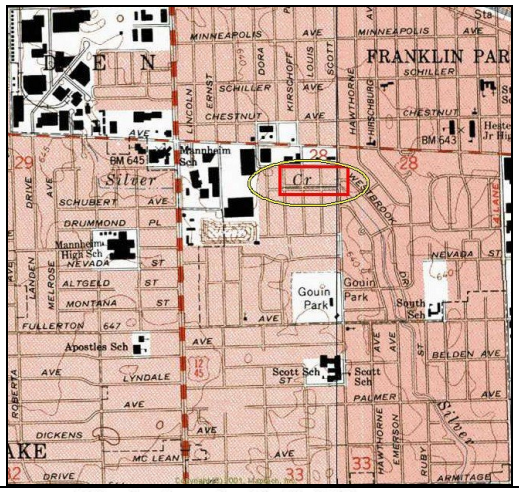
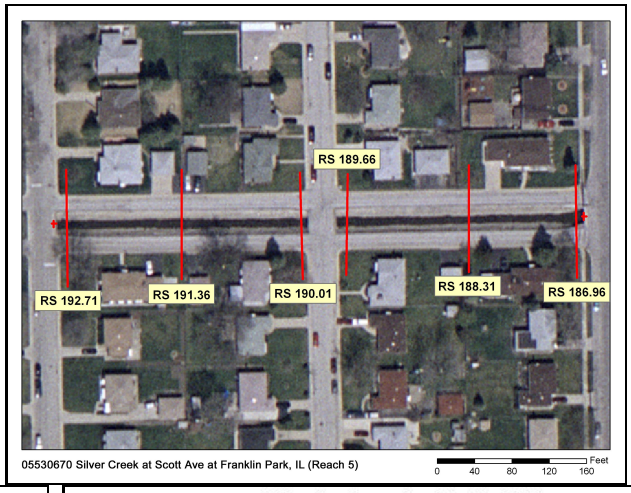
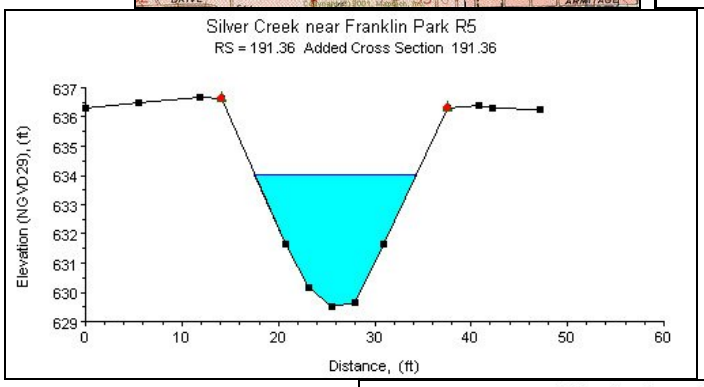
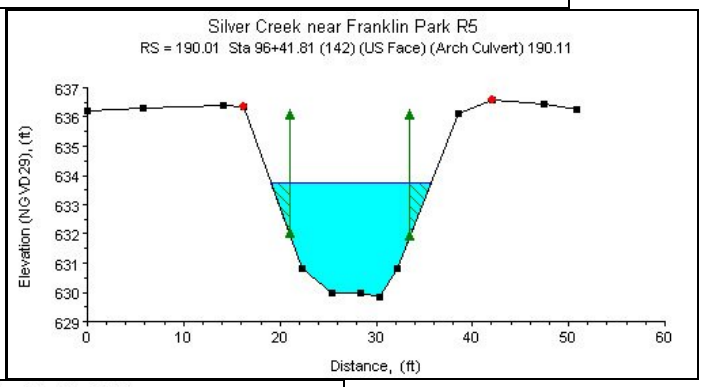
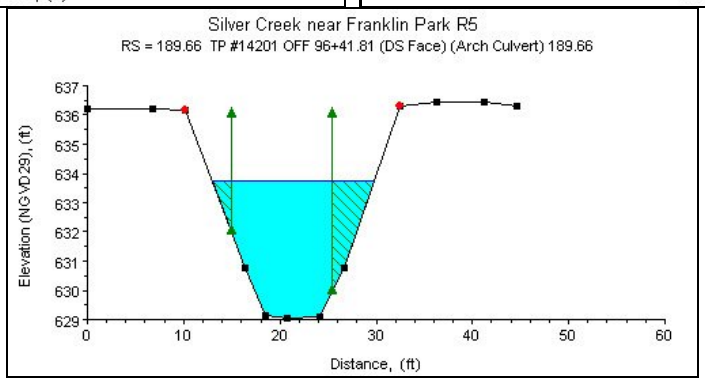
Silver Creek at Scott Ave at Franklin Park, IL (Reach 5)











Study Reach.--The channel reach under consideration is a constructed channel in an urban area. The study reach, 575 ft long, is located between the downstream side of Park Street bridge (a culvert) to the upstream side of Scott Street bridge, as shown in the quadrangle map on the top left. Six surveyed cross sections (surveyed by the Illinois Department of Natural Resources in 1995) are available to evaluate channel geometries in the study reach. The channel alignment, approximate variations in channel width and bank conditions, and locations of surveyed cross sections are shown in the aerial photo on the top right. The general shape of the cross sections varies gradually and continuously from upstream to downstream (see plots above).

Gage Location.--The location of discharge measurement is lat 41°55 42 , long 87°52 30 . The general location is NW1/4 NW1/4 SE1/4 sec.28, T.40N, R.12E, Cook County, Hydrologic Unit 07120004. The USGS streamgage-station number is 05530670.

Drainage Area.--8.51 sq mi.

Gage Datum and Elevations of Reference Points.--Reference points (RP-N) were established for the n-value study. RP-N10 is two file marks on the center I-beam on the downstream side of Park Street bridge, elevation=639.12 ft. RP-N9 is two file marks on the center I-beam on the upstream side of Louis Street bridge, elevation=639.90 ft. RP-N8 is two file marks on the center I-beam on the downstream side of Louis Street bridge, elevation=639.86 ft. RP-N7 is the top of a bolt in the left upstream concrete culvert abutment on Scott Street, elevation=636.65 ft. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Water-surface elevation was measured from the reference point before and after the discharge measurements. Discharge measurements were made using acoustic Doppler current profiler (ADCP) or using the conventional current-meter method. At medium to high flows, discharges are measured from Scott Street bridge or Louis Street bridge. The culvert openings may become the control at high water stage and affect the water-surface elevation readings at upstream. Therefore, no events are collected for stages above **** ft. The computed n-values are listed in the following table. Whenever possible, the computed n-values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-values at a particular stage.

Date of Observation	Discharge (ft^3/s)	Average Cross Section Area (ft^2)	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness *n*
5/2/2006	19.6	26.7	1.96	0.77	0.001098	0.105
6/26/2006	30.6	31.3	2.20	1.04	0.001108	0.086
4/25/2007	89.0	44.2	2.76	2.17	0.001256	0.053
4/25/2007	89.0	44.4	2.77	2.15	0.001257	0.053
1/13/2005	134.0	50.7	3.13	2.97	0.001217	0.042

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 06/03/03
Looking downstream from Louis St

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 06/03/03
Looking Upstream at Louis St grouted riprap

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 05/02/06
From upstream end, looking downstream

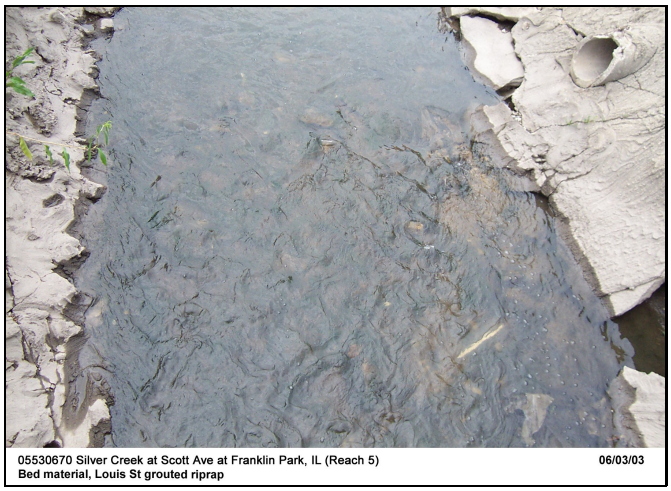
05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 05/02/06
From downstream, looking upstream

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 05/02/06
From Louis St, looking downstream

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 06/26/06
Looking downstream

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 06/26/06
Looking upstream

05530670 Silver Creek at Scott Ave at Franklin Park, IL (Reach 5) 01/13/05
Looking Downstream



Description of Channel.--This channel is artificial with grouted riprap banks and bed. The channel bed has cobbles on top of sand and is subject to algae growth, especially during warm periods. Channel cross sections are trapezoidal in shape with a top width of about 30 ft. The grouted concrete banks are moderately steep and have large weeds growing in through the cracks.

Floods.--Maximum discharge, 15,500 ft^3/s, Apr. 13, 1994, gage height, 20.46 ft.

Estimated n-Values using Cowan s Approach.--